TID/TAB - 11/66
28 January 1966

MEMORANDUM FOR THE RECORD

X1 SUBJECT: Meeting With [redacted] Personnel on Additional Programming for AP-3 Analytical Plotting System.

1. On 25 January a meeting was held in the TID conference room to discuss a proposal for writing a program for strip photography for the AP-3 Analytical Plotter System.

2. Present at the meeting were:

X1 [redacted]

3. The meeting was started by [redacted] explaining his views on Panoramic and Strip Photography, and how if [redacted] program for Panoramic Photography is feasible, could be modified to a program for Strip Photography. [redacted] then gave a general rundown of the [redacted] programs for Frame, Panoramic, Absolute and relative orientation. 25X 25X 25X 25X

X1 4. [redacted] then presented his views on [redacted] programs starting with the collinearity equation. [redacted] stated X1 that the [redacted] program uses this same set of equations. 25X 25X

5. After a long discussion on the programs it was agreed X1 that [redacted] would proceed to work up a proposal for a Strip Program by modifying the Panoramic Program. The following X1 information was given to [redacted] to work with:

a. The velocity of the film would not be assumed to be constant. The velocity of the film could be determined either externally or internally. If a pre-processing routine was used. If the pre-processing is done externally a time table could be entered into the AP-3, or calibrated time marks could be read into the AP-3.

X1 [redacted] stated that any electronic pre-processing data done internally on the AP-3 could be accepted and programmed to give the AP-3 the necessary data such as film velocity. [redacted] also stated 25X
that he would rather handle any data from the AP-3 electronically, such as a real time process than have to handle paper tape. He further stated that if the [redacted] 25X
computer was sending electronic impulses to the tape punch, then these impulses could be used in the Univac.

X1 b. [redacted] was told that if they could come up with enough room in storage to handle preprocessing internally to write the proposal along this line.

c. Image Motion Compensation in the Panoramic Program would be replaced with velocity of the film in the Strip Program.

d. Film shrinkage would be treated as a constant after reading in the width of the format.

e. Assume only one camera is being used, therefore only one calibrated focal length and film width will be used.

f. That film velocity averages about two to three inches per second.

g. A two photo block adjustment will have to be used to compensate for lack of ground control.

h. Due to our lack of ground control and the use of a two photo block adjustment the possibility arises that the space in storage taken up by [redacted] "Black Box 25X
Routine" may be eliminated and utilized for something else, such as changing limits or preprocessing.

4. The limits that are presently written into the Panoramic Program are insufficient to accommodate our future needs or modification to a Strip Program. Two proposed sets
X1 of limits were presented to [redacted] one for the modification for Strip Photography and the other set to accommodate future Panoramic needs. The limits presented are as follows:

For modification to Strip.

Pitch	Roll	Yaw	Focal Length (inches)	Altitude (Ft.)
± 20°	± 45°	± 10°	999	999,999

For future Panoramic.

Pitch	Roll	Yaw	Focal Length (inches)	Altitude (Ft.)
± 35°	± 45°	± 10°	99	999,999

The only problem [redacted] could foresee in these changes would be the change in focal length. [redacted] stated that a change in focal length is directly proportional to the slewing speed of the instrument. This is further compounded by whether the instrument is in the five micron or one and one quarter micron accuracy mode.

5. [redacted] submitted the proposal for training one to four programmers. Copies of the proposal were given to [redacted]

6. [redacted] presented [redacted] copies of a paper titled "Additional Modifications for AP-3 Stereoplotter". This paper deals mainly with line assignments in the computer, new instructions, and changes to routines. The major change listed in this paper was the "Type Output Routine". The type output routine will type out four different combinations of information. They are:

1. Photo Points, Model Points and Model Distances.
2. Photo Points.
3. Model Points and Model Distances.
4. Model Distances.

The quantities typed out may be either averaged coordinates or normal coordinates depending on whether or not averages have been taken.

One problem that was bothering us after our trip to [redacted] was getting distance answers in model scale values instead of

ground scale values. [redacted] has resolved this by adding the capability of typing out Model Coordinates and Model Distances in ground scale. This will be accomplished by entering a ground scale multiplier through the viewer panel.

7. [redacted] added that a proposed future modification to the computer to add more cards would increase the word size from 28 bits to 32 bits. This change would increase any future computer speed from 80 words to 128 words per line. [redacted] said, "if word size could be lengthen to 40 bits this would completely eliminate any focal length problems."

8. In closing the general feeling was that this was a very beneficial and productive meeting. The [redacted] personnel had gained enough knowledge to submit a proposal for a Strip Photography Program. The only draw back in writing this program will be increasing the focal length capacity in the AP-3 computer. [redacted] thought this problem could be solved by gaining more space in the storage area of the computer by elimination of some of the material written into the Panoramic Program that wouldn't be needed in a Strip Program.

[redacted]
Production Section
Technical Analysis Branch

Distribution:
Orig. - Ch/TID/TAB (Route to CH/TID)
1 - Ch/TAB/PS
1 - Ass't for P&[redacted]
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Letter from [redacted] filed 25X
in the Yellow Locked file
under Project 998125

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